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TWELFTH ANNUAL SURVEY OF THE BARK BEETLE INFESTATIONS OF THE COEUR D'ALENE NATIONAL FOREST 1940

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TWELFTH ANNUAL SURVEY OF THE BARK BEETLE INFESTATIONS OF THE COEUR D'ALENE NATIONAL FOREST 1940

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A survey to determine the status of the mountain infestation in the white pine stands of the Coeur d'Alene National Forest was started August 5, 1940, and completed August 31.

This survey differed in two respects from the surveys made during the past eleven years. Heretofore surveys of the stands in the Coeur d'Alene Forest included all of the major areas of white pine timber--an annual coverage of from 118,000 to 127,000 acres. The surveys were made by examining continuous sample strips one chain in width projected in gridiron fashion through the stands.

Because several areas have been recently logged and therefore do not present a serious insect loss hazard and because of the low insect population recorded on others in 1939, a number of these areas were not surveyed during the present season. Where the 1939 survey included 118,730 acres the 1940 survey has been made on 84,350 acres. No comparable figures can be given for the forest as a whole, but comparison can be made on individual forest units. Such a comparison is given in table 1.

During the survey of 1939 a study was made of the use of a sample plot system in comparison with the continuous strip system of surveys to determine if the plots could be used to advantage for such surveys. After a rather extensive study the plots were found to be more

accurate even though less acreage of sample was secured, and the plot system was adopted as a method of making insect loss surveys in white pine stands. The 1940 survey was made by examining 10th-acre plots at 2-chain intervals along strips projected through the stands as in the past. Current insect loss and the green white pine were recorded on each plot and all plots for each unit are totaled to secure the estimated loss.

Table 1 - Mountain pine beetle infestation on the Coeur d'Alene Forest, 1938-1939-1940

Unit Surveyed	Acres	Infested trees per acre			Percent of stand killed		Infested trees
		1938	1939	1940	1939	1940	1940
Honeysuckle	5,320	.059	.147	.15	.9	.7	798
Laverne	2,560	.155	.0	.08	.0	.5	205
Taylors	2,800	.485	.471	.20	2.7	1.0	560
Forks-Cabin	5,440	.369	.350	.34	1.2	.9	1,850
Can Creek	1,760	.651	.261	.22	1.1	.6	387
West Fork	3,960	.298	.151	.08	.7	.3	317
Clay Creek	2,320	.475	.248	.41	.8	1.0	951
Lower Cougar	3,600	.091	.104	.20	.6	1.2	720
Upper Cougar	3,700	.179	.073	.04	.4	.2	148
Bumblebee	3,040	.342	.114	.13	1.0	.7	395
Sissons	4,700	.356	* .520	.19	1.9	.6	893
Yellow Dog River	2,140	.505	*1.150	.41	3.0	.8	837
Yellow Dog Creek	4,120	.246	* .450	.19	1.1	.3	783
Downey Creek	4,160	.341	* .650	.21	1.8	.5	873
North Yellow Dog	840	.200	* .360	.03	1.2	.1	25
Lower Flat Creek	4,120	.112	.0	.07	.0	.2	288
Bennett Creek	580	.033	.0	.0	.0	.0	0
Brett-Miner	1,550	.016	.0	.0	.0	.0	0
Hawksite	8,780	.075	.01	.07	.1	.5	614
Cabin Creek	7,000	.129	.270	.09	.15	.4	623
Rock City	1,600	.048	.062	.02		.1	
Big Elk Creek	4,960	.054	.048	.07	.3	.5	347
Potter Creek	**1,400	.091	.03	.17	.1	.6	238
Upper Flat Creek	3,680	.242	.025	.05	.1	.4	184
East Eagle	3,540		.10	.04	.8	.3	142
West Eagle	1,280		.08	.07	.5	.3	90

* Control measures applied in fall of 1939.
** Acreage reduced from 3,800 to 1,400 because of logging.

Of the 25 units surveyed in 1940 only the Clay Creek unit in the head of Steamboat Creek has shown any marked increase over the 1939 estimate. There is, however, a discrepancy in the comparison between the 1939 and 1940 estimates. It may be noted that while the 1939 figure shows an infestation of .248 infested tree per acre with .8 of the stand infested, the 1940 data show .41 infested tree per acre with but 1 percent of the stand infested--a 60 percent increase in the infested-tree-per-acre figure and a 25 percent increase in the percentage of the stand infested. This difference is believed to be due to the somewhat greater accuracy of the plot system of survey over the sample strip method which was used in 1939. The same discrepancy may be seen in some of the other units.

A brief description of the infestation within the individual units surveyed follows:

LITTLE RIVER DISTRICT

Honeysuckle Unit — Acres -- 5,320

Infested trees per acre		.15
Percent of stand killed		.7
Infested trees on unit	798	

The mountain pine beetle infestation in the Honeysuckle unit is not serious at present. However, these data will have to be corrected to compensate for trees infested subsequent to the survey data obtained early in August. Such a correction may not materially alter the present figure because nearly one-third of the early August brood was in an advanced stage of development and can be expected to emerge before the end of the season. It is therefore thought that nearly as many trees will be abandoned as there will be trees newly

attacked, so that the infestation will remain nearly the same in terms of infested trees per acre.

Laverne Creek Unit — Acres -- 2,560

Infested trees per acre	.08
Percent of stand killed	.5
Infested trees on unit	205

While this unit contains some rather heavily stocked areas along the creek, the stands on the ridges are not thick. Very little insect infestation has been recorded in the unit during the past four years.

GRIZZLY MOUNTAIN DISTRICT

Taylors Unit — Acres -- 2,800

Infested trees per acre	.20
Percent of stand killed	1.0
Infested trees on unit	560

The mountain pine beetle infestation in the Taylors unit in lower Steamboat Creek is only about half as serious as in 1939. While the infested trees still amount to approximately 1 percent of the stand, the loss seems to be confined largely to dry-site trees.

In many parts of the unit, of which the Omaha drainage is typical, there is a rather dense stocking of short, limby pine that seems to be particularly susceptible to root rot and insect attack. From a distance these stands have a decided yellow appearance with numerous spots of old insect kill and a general scattering of red tops.

Forks-Cabin Unit — Acres -- 5,440

Infested trees per acre	.34
Percent of stand killed	.9
Infested trees on unit	1,850

The mountain pine beetle infestation in the Forks-Cabin unit has not changed to any marked extent during the past three years. The attacked trees occur over the entire unit, usually as singly infested trees but occasionally in small groups of 4 or 5. The infested trees are not very heavily attacked--many are infested on but one side. Some of the infested trees were found to have been attacked on one side in 1939.

Although many very recently attacked trees were recorded on the sample plots, very few trees were found that still contained 1939 brood. This is believed to be an indication that the attacks were largely over in the drainage at the time of the survey.

Gas Creek Unit — Acres -- 1,760

Infested trees per acre	.22
Percent of stand infested	.6
Infested trees on unit	387

The infestation in this unit has decreased to some extent from that of last year. The infested timber lies, largely, on the dry or western slopes and is not considered to present a serious condition.

West Fork Unit — Acres -- 3,960

Infested trees per acre	.08
Percent of stand infested	.3
Infested trees on unit	317

While no serious infestation was recorded in the white pine stands of the West Fork drainage, a rather severe epidemic of the Douglas fir beetle is in progress in the Douglas fir stands on the ridges. Groups of from 30 to 50 fir are being killed by an infestation that seems to have increased about 100 percent since 1939. However it is doubtful if it is as severe as it was in 1937 or 1938.

Clay Creek Unit — Acres -- 2,320

Infested trees per acre	.41
Percent of stand infested	1.0
Infested trees on unit	951

Although the 92 acres of sample plots examined in the Clay Creek unit show .41 infested trees per acre, which is a 60 percent increase over the infestation recorded in 1939, it is thought that this increase is somewhat exaggerated and that the infestation has not changed materially during the past three years.

A rather large number of Douglas fir are being killed by the Douglas fir beetle in the heads of Martin and Autumn Creeks. The infested trees occur in large groups along the ridges. It is estimated that there are about 500 fir being killed in the entire unit.

Lower Cougar Unit — Acres -- 3,600

Infested trees per acre	.20
Percent of stand killed	1.2
Infested trees on unit	720

The mountain pine beetle infestation in the Lower Cougar unit has increased about 100 percent over the figure secured in 1939. Of the attacked trees examined slightly over one-half were either very recent or contained an egg-stage brood, while the balance of the infested trees were partially emerged 1939 attacks with advanced brood.

Large groups of infested Douglas fir were seen on the higher drier ridges. The infestation in the Douglas fir stands, which has been active in the unit for the past several years, seems to be again on the increase after an apparent decrease in 1939.

Upper Cougar Unit — Acres -- 3,700

Infested trees per acre		.04
Percent of stand killed		.2
Infested trees on unit	148	

The mountain pine beetle infestation in the Upper Cougar unit has decreased nearly 100 percent in comparison with the 1939 infestation. Of the 4 infested trees found on the 90 acres of sample plots taken in the drainage, all were of comparatively recent attack. Although some additional attacks can be expected in the unit, it is thought that the infestation will not be other than normal.

Bumblebee Unit — Acres -- 3,040

Infested trees per acre		.13
Percent of stand infested		.7
Infested trees on unit	395	

While the mountain pine beetle infestation in this unit is apparently much the same as in 1939, the 1940-attacked trees are lightly attacked and many of them are being pitched out.

Honey root fungus is apparently killing some of the young pine on the drier ridges and southern slopes. These fungi-infested trees are not as a rule infested by insects and are not at all numerous.

SHOSHONE DISTRICT

Sissons Unit — Acres -- 4,700

Infested trees per acre		.19
Percent of stand infested		.6
Infested trees on unit	893	

Control measures applied to the mountain pine beetle infestation in the Sissons unit during the fall of 1939 were no doubt a factor in reducing the infestation to its present status. The 1940 infestation is rather evenly distributed over the unit and is to be found largely in the vicinity of past control operations. A small area of pole-type white pine in the heads of Venus and Jupiter Creeks shows a slightly heavier concentration of attacks than the rest of the unit. In this small area the stand shows evidence of severe past loss, as there are numerous snags and windthrown insect-killed trees. The attacked trees in this area are but lightly infested and do not present a serious situation.

Yellow Dog River Unit — Acres — 2,140

Infested trees per acre		.41
Percent of stand infested		.8
Infested trees on unit	837	

The control measures which were applied to the mountain pine beetle infestation in this unit during the fall of 1939 were no doubt the cause of the sharp decrease of nearly 65 percent in the infestation since last year. While there is still an infestation of nearly half of a tree per acre in the unit, the infested trees over most of the unit are but lightly attacked.

On one small part of the area, however, lying between Downey Creek and the river near the Devils Elbow CCC camp, the infested trees are more heavily attacked. This area includes most of the southeastern quarter of section 14.

Yellow Dog Creek Unit — Acres -- 4,120

Infested trees per acre	.19
Percent of stand infested	.3
Infested trees on unit	783

The mountain pine beetle infestation in the Yellow Dog Creek unit has decreased from .45 infested tree per acre in 1939 to .19 in 1940. This reduction can be credited to the control measures instituted in the area last fall.

Although further corrections may bring the present figure of .19 infested tree per acre up to some extent, it is thought that the subtraction of those trees now containing brood of an advanced stage, and which can be expected to emerge before the end of the season, will hold the infestation figure close to the present estimate.

The timber stands in the Yellow Dog drainage contain some of the finest timber on the forest. The best timber lies along the south side of the drainage between the ridge and the creek. This stand is from 100 to 120 years old and is stocked with as many as 110 white pine per acre in certain areas. The trees show a marked decrease in growth during the past 20 years and it is believed that the maximum growth has been attained. The white pine stand on the north side of the creek is growing largely on a steep southern exposure and is composed of short, heavily limbed trees of a site 4 type. Some parts of this stand are but 70 years in age.

Downey Creek Unit — Acres -- 4,160

Infested trees per acre	.21
Percent of stand infested	.5
Infested trees on unit	873

The infested-tree-per-acre figure of .21 recorded in the Downey Creek unit represents a decided decrease from the .65 infestation of 1940. Control measures applied to the infestation during the fall of 1939 are no doubt the cause of the marked decrease.

The present infestation consists of lightly attacked trees scattered throughout the area--often near the scene of past control work.

North Yellow Dog unit — Acres -- 840

Infested trees per acre		.03
Percent of stand infested		.1
Infested trees on unit	25	

The mountain pine beetle infestation in the North Yellow Dog unit has decreased to such an extent through the effect of control measures instituted during the fall of 1939 that practically no trees are being killed. An 8 percent cruise of the area showed but 2 infested trees. One group of 4 infested trees was found near the forks of Teddy Creek. Two of these trees were heavily attacked.

Lower Flat Creek Unit — Acres -- 4,120

Infested trees per acre		.07
Percent of stand infested		.2
Infested trees on unit	288	

Although no infested trees were found in the Lower Flat Creek unit in 1939, a light infestation no doubt existed. The present infestation is of no great importance and is confined largely to scattered areas of younger stand. Most of the white pine of Flat Creek is of overmature stocking of some 250 years in age.

Bennett Creek — Acres -- 580

Infested trees per acre	None
Percent of stand infested	None
Infested trees on unit	None

Early in 1933 the stand of the Bennett Creek unit suffered a severe blowdown. Several hundred windthrown trees were infested by the mountain pine beetle and were subsequently treated. An infestation followed which fluctuated for several years and eventually died out. No infestation has been found in the area for the past two years.

Brett-Miner Unit — Acres -- 1,550

Infested trees per acre	.0

No infestation has been recorded in the overmature stands of the Brett-Miner unit for the past two years.

Hawksite Unit — Acres -- 8,780

Infested trees per acre	.07
Percent of stand infested	.5
Infested trees on unit	614

A very light infestation extends over the entire area of the Hawksite unit. It cannot be considered other than normal because of the scattered nature and because of the general lightness of the individual attacks.

One small area of about 40 acres near the mouth of Falls Creek, which has been selectively logged in the past and which is now stocked with a young pole-like stand, has a rather large number of red-topped trees. There are about 150 of these red tops which upon examination

proved to have been killed from what is believed to be exposure. The logging operations opened the stand to such an extent that nearly all of the remaining trees became sun-scalded on their southern sides. While nearly all of the dying trees examined contained a few mountain pine beetle galleries and brood, most of the insect work was caused by a secondary insect, Ips vancouveri. Because of the dry nature of the infested trees very little mountain pine beetle brood can be expected to emerge from them. It is very doubtful if any of this stand will survive for many years because the conditions do not seem to be favorable for the stand.

Cabin Creek Unit — Acres -- 7,000

Infested trees per acre		.09
Percent of stand infested		.4
Infested trees on unit	623	

A very satisfactory decrease secured in the mountain pine beetle infestation in the Cabin Creek unit of the upper Big Creek drainage this season. While there are some excellent stands on the better sites in this unit, much of the timber lies on ridge tops and in dry southern slopes. It is on these dryer sites that seem particularly susceptible to insect and fungi attack that the infested trees occur.

The attacked trees are not badly infested and are found largely in the vicinity of past control operations.

Rock City Unit — Acres -- 1,600

Infested trees per acre		.02
Percent of stand killed		.1
Infested trees on unit	32	

No infestation of any consequence has been reported in the Rock City unit for several years. Only a few scattered red tops are to be seen.

FORKS DISTRICT

Big Elk Creek Unit — Acres -- 4,960

Infested trees per acre		.07
Percent of stand infested		.5
Infested trees on unit	347	

Only a very light mountain pine beetle infestation was recorded on the sample plots examined in the Big Elk drainage. The area is stocked with large overmature white pine and is not the type where serious infestations develop.

Potter Creek Unit — Acres -- 1,400

Infested trees per acre		.17
Percent of stand infested		.6
Infested trees on unit	238	

Although the Potter Creek drainage contains 3,800 acres of white pine stand, the 1940 survey was confined to approximately 1,400 acres near the junction of Potter and Stewart Creek. Logging operations now in progress in this drainage is removing the timber and will make any thought of control needless.

Upper Flat Creek Unit — Acres -- 3,680

Infested trees per acre		.05
Percent of stand infested		.4
Infested trees on unit	184	

Although a small area of young white pine on the north side of the creek was occasionally found to be rather heavily infested, no

serious infestation of the mountain pine beetle has been recorded during the past two years. Aside from the one small area of young timber the stands of the unit are largely overmature.

EAGLE CREEK

East Eagle Creek — Acres -- 3,540

Infested trees per acre		.04
Percent of stand infested		.3
Infested trees on unit	142	

West Eagle Creek Unit — Acres -- 1,280

Infested trees per acre		.07
Percent of stand infested		.3
Infested trees on unit	90	

A very light infestation exists on both forks of Eagle Creek. There has been but little change in the status of the infestation for the past several years. The stands which are not heavily stocked are very patchy and are to be found largely on the more protected northern slopes. The white pine stands mix with Douglas fir which covers most of the southern slopes and higher ridges.

Scattered red tops can be seen throughout the Douglas fir stands, which indicates a general epidemic killing of the type.

DOUGLAS FIR BEETLE INFESTATION

For the past several years an infestation of the Douglas fir beetle has been destroying large numbers of Douglas fir throughout the forest. This epidemic was very noticeable during the years of 1937-1938 and apparently decreased in 1939. However, large groups of fir are again being killed in most of the fir stands of the forest. Because

the Douglas fir stands are largely outside the boundaries of the surveyed units, no reliable figures are obtained from the sample plot data. Visual counts of sorrel and fading fir show the yellowing areas to contain the largest infestation.

Upper Cougar	150
Lower Cougar	200
Clay Creek	500
Forks-Cabin	150
Little Guard	600

These Douglas fir stands usually occur in a rather narrow band along the ridges and dryer slopes. It is usually only in the pure stands of Douglas fir that the epidemic is so noticeable. Very few infested Douglas fir were recorded on the sample plots or were seen in the mixed Douglas fir and white pine stands.

The Little Guard area which lies in the head of Tourist Creek is quite isolated from the nearest white pine stand. The Douglas fir infestation in this area is on the high ridges near Little Guard Peak and has been in progress for a number of years. It does not appear to be increasing at present, but large spots of past kill are now plainly visible on the ridge points.